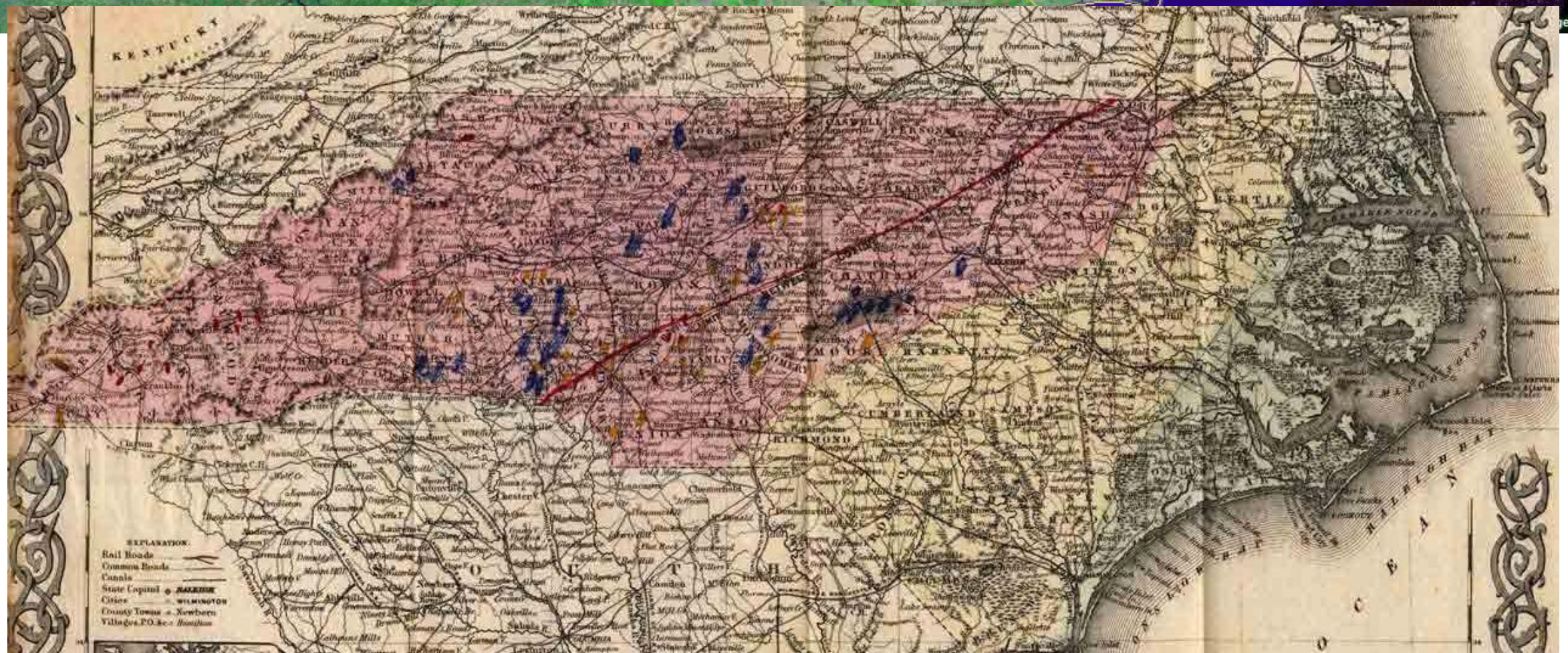
Good Fire
NC State Parks



Stop 1 – History of NC landscape

- Ask the hikers what they think this landscape might have looked like before the colonists arrived.
- Do you think it’s much different today
- Is change good
- American Indians and European settlers both actively used fire up until the 1800s.

Stop 2 – Lightning caused fires

- Lightning strike fires are believed to have burned across southeastern forests on an average of every five years.
- Do you think these were catastrophic fires?
- Now, two things that have changed the historic nature of fires in NC, the suppression of these lightning strike fires and…..

Stop 3 – forest fragmentation

- Talk about how forest fragmentation and
- suppression of the frequent, low intensity wildfires caused by lightning strikes
- have altered the natural vegetation and animal species found in the landscape.

In a forest where fires rarely happen, fuel builds up: There's **surface fuel** (grass, logs, woody debris, brush); **ladder fuel** (shrubs, small trees, snags); and **tree crowns**.

1. Surface fires spread quickly through brush and woody debris.

2. Ladder fuels allow the fire to move up toward the forest canopy.

3. Tree crown fires are so intense, they're difficult to control.

Stop 4 – Fire in the forest

- Talk about how wildfire risk and intensity is reduced by prescribed burning the built-up leaf litter and thick shrubs in the forest understory. This helps to protect the forest on dry windy days when fire would be devastating to the trees and animals as well as the surrounding homes in the community.

Stop 5 – burning improves forest

- Talk about how burning selects the plant species to be in the part of the forest where they historically belong (e.g. water oak, sweet gum and red maple do not belong in longleaf ridge but are found in bottoms, removing fire allows them to move up on the ridge pushing out natural vegetation).
- Burning allows more sunlight to reach the forest floor by lowering trees/acre and removing a majority of mid-story trees. This sunlight allows native grasses and forbs to thrive, allowing a place for animals to forage.

The Forest Built by Fire

Immediately after prescribed fire.

Historically, low intensity fires frequently moved through the landscape.

Today these fires are mimicked using prescribed fire.

Fire reduces competition from hardwoods and other pines, maintaining open conditions necessary for longleaf pines and native plants, while providing food and habitat for wildlife.

Regrowth two weeks after fire.

Fire resistant, not fire-proof

Longleaf is resilient to frequent fires but is vulnerable to fire at certain stages:

- Prior to the grass-stage as new germinants.
- During height growth before bark thickens
- While "candling" in early spring before needles emerge on new growth.

Sapling:
Lateral branches emerge at 6-10 ft in height.

Mature:
Lower pine limbs are pruned by fire, keeping the canopy above most flame heights.

Thick plates of bark protect the inner trunk from fire.

Native understory plants and longleaf needle litter provide fine fuels to carry fire across the forest floor.

Seeds:
Fire consumes litter on the forest floor, creating optimal conditions for germination.

Grass Stage:
Young longleaf resemble a clump of grass. The dense needle cluster protects the bud from fire and will quickly regrow post burn.

Rapid height growth increases longleaf's competitive advantage for sunlight and moves the growth bud above typical flame heights.

Bottlebrush:
Longleaf bolts in height with no branching.

Most grass-stage growth occurs underground as seedlings develop extensive root systems.

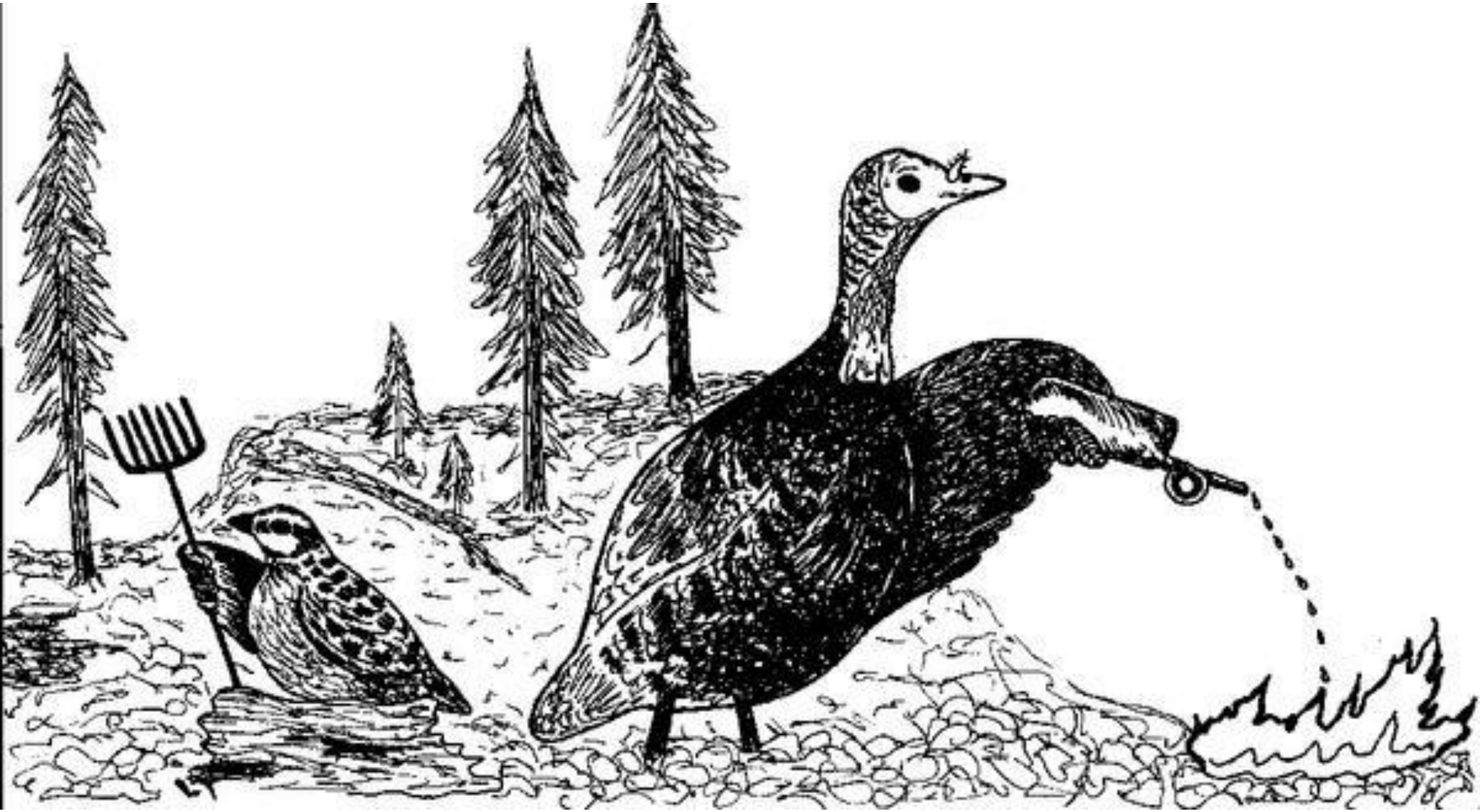
Fire recycles nutrients back into the soil.

Stop 6 – fire dependent species

- Burning reduces the build-up of leaf litter, which allow seeds of fire dependent species to germinate in the mineral soil.
- Many plant and animal species are fire adapted or fire dependent (bark thickness, longleaf pine grass stage, serotinous cones, mineral soil needed for germination, etc.)
- Show and pass around loblolly pine and longleaf pine needles and cones as a comparison.
- Talk about pines (“tarheel state” origin, order of the longleaf pine award, NC state toast) and how Longleaf was the dominant tree species in the southeast coastal plain and is now reduced to only 3% of its original range largely due to over harvesting and fire suppression.

Stop 7 – Prescribed Fire

- Talk about burning conditions needed and other precautions taken to keep fire safely within the fire-lines and manage smoke and how we accomplish this.
  - Low flame height
  - Backing fire
  - etc



Stop 8 – Prescribed Fire Results

- Research has shown that prescribed fire can reduce tick populations by as much as 80%!
- Fires are conducted slowly enough that animal species can get out of the way or seek shelter and not be harmed.

- Show fire pack, shelter, drip torch or other fire gear.